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ADDRESS.

CHAIRMAN'S ADDRESS.

Delivered in the Section on Surgery and Anatomy, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

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NEW YORK, N.Y.

When I returned home after the meeting in Atlanta last year, I was most pleasantly surprised to learn from the papers that I had been selected to preside over this Section. I wish to thank you most heartily for the great honor which you have done me in making me Chairman, and especially so for having placed me in this position at this meeting, the most important one which has ever been held by the AMERICAN MEDICAL ASSOCIATION, celebrating, as it does, its fiftieth anniversary.

The number of papers which have been offered for the consideration of the Section has been so large that I have obliged, much against my will, to decline a great many as all the available time at our disposal had already been fully occupied by papers which had been presented at an earlier date. But I trust the authors will realize that, as our time is limited and as it is impossible to do more than a certain amount in this space, my action was the result of necessity. In my own opinion, it is a mistake to have so large a number of papers as to render it impossible to grant full discussion to those of marked interest, and I think that much more benefit is had from these meetings, if we confine our attention to a smaller number of carefully prepared and thoroughly scientific papers, which enter exhaustively into the consideration of a topic, and have the same discussed by men of experience, rather than to consume our time with the consideration of so large a number of hastily written, incomplete articles, that no opportunity is left for discussion. Oftentimes, the discussion is of as much value as the paper itself, especially so if the author has taken the precaution to send an abstract of his views to various men of experience, in order that they may prepare themselves in advance on the different points which will be brought up, as it frequently happens that time is required to thoughtfully consider new propositions before they can be discussed with intelligence.

From personal experience as Secretary in this Section for two years, in addition to that which I have derived as Chairman this year, I am convinced that we can find a more intelligent way of preparing our program than that at present in force.

That part of the By-Laws relating to papers is: "It shall be the duty of every member, who proposes to read a paper or report to any of the Sections to forward the paper or a title indicative of its contents and its length, to the Secretary of the Section at least one month before the annual meeting at which the paper is to be read. It shall be the duty of the Chairman and the Secretary of each Section to communicate the same information to the Chairman of the Committee of Arrangements concerning such papers and reports as may come into their possession or knowledge for their respective Sections the same length of time before the annual meeting. No paper shall occupy more than twenty minutes. Such papers shall be referred to a subcommittee for their examination, who shall be allowed thirty days for such examination, at the end of which time they shall forward the paper to the Board of Trustees with such recommendation as they may deem proper. . . Every paper shall be the exclusive property of the ASSOCIATION, and be published for its exclusive benefit."

This section should be modified to require the title of the paper to be sent to the Secretary one month in advance and a copy of the paper two weeks in advance of the meeting.

The present method leaves the Chairman largely in the dark as to the amount of work which may be brought before the Section, for unless the copies of the papers to be read before the Section are in the hands of the Secretary at the commencement of the session, it often happens that the gentlemen who have promised papers fail to appear, and the regularity of the proceedings is very seriously embarrassed. The audience also is put to much inconvenience, for the members of the ASSOCIATION, in order to make the best possible disposition of their time, may linger in some other Section to listen to a paper which interests them, coming to this Section at a time when, judging from the program, they might reasonably expect a certain paper to be reached, only to find that it has already been finished in consequence of the absence of a number of other speakers who should according to the program have preceded the paper in question.

It seems to the Chair that the position taken this morning by our President was without question the correct one, that the county societies should be the place for maiden efforts, that those who were thought worthy of places as delegates to the State societies could there present their more mature ideas, while the time of the Sections of the National ASSOCIATION should not be occupied, except by papers of exceptional worth. Papers of this character are not prepared over night and those who desire to appear before this National body should be made to understand that if their papers are not of sufficient importance to justify them in preparing them two weeks in advance of the time of meeting, it is not likely that they will be of sufficient interest to the Section to justify their occupying space on the program.

Another point to which I would like to call your attention is that Article of the By-Laws which states that all papers read before the Sections are the exclusive property of the ASSOCIATION and to be published

for its benefit. The ASSOCIATION resolved some seventeen years ago to cease publishing its Transactions in book form and to issue a weekly journal which should contain all the papers read before the ASSOCIATION and its Sections. If we do not support the JOURNAL how can we expect it to succeed, and unless it has exclusive control of the papers presented before the Sections, it is at once deprived of a most vital source of strength and, in consequence, instead of being the most potent factor in making the ASSOCIATION a power in the land, it is handicapped in its competition with other journals by the very men who should be most interested in its support and who should realize that in advancing its interests they are advancing their own, even if they are unwilling to assist from any less selfish motives.

The last few years have witnessed many notable advances in surgery and perhaps the most striking departure from the older methods is the effort to substitute prevention for cure, and following in the steps of Jenner to endeavor by means of the injection of various immunizing agents not only to arrest the ravages of septicemia, erysipelas, tetanus and surgical infectious diseases in general but even to prevent their occurrence by prophylactic injections.

The various reports on this subject are somewhat at variance and the personal equation of the observer must be taken into account. Yet it seems clear that while the successful cases reported are but few, and in some of them doubtless the favorable termination is not to be attributed to the means employed, still certain results have been accomplished and the field of the surgeon seems to be widening day by day and his ability to cope with deadly forms of disease in future will probably be enormously increased through the revival of interest in preventive surgery.

Under the head of preventive surgery come also the new antiseptics which have been brought into use, of which I will mention but a few; loretin, a dusting powder which is free from odor and has proved itself of great use; the oxycyanid of mercury, whose great advantage over the bichlorid of mercury is its non-corrosive action on instruments; calcium permanganate, which is said to be more powerful than the potassium salt, and the formalin-gelatin treatment of Schleich, which promises much in the treatment of infected wounds. This same observer has presented us with eucain, a substitute for cocain as a local anesthetic, which is safer in its effects and produces anesthesia of a more lasting nature.

In conservative surgery we have another instance of the ingenuity of McBurney, who in a case of sarcoma of the radius, instead of amputating the elbow, removed the sarcomotous radius, did a circular amputation in the middle of the forearm and sewed the biceps tendon to the base of the coronoid process of the ulnar thus giving the patient a stump over which he had voluntary control.

Our English brethren have been busy in abdominal surgery and Golding Bird and Harrison Cripps have both suggested plans for avoiding leaking after gastrostomy. Bird makes a small hole in the stomach and, dilating it with a pair of dressing forceps, inserts a rubber tube, claiming that the subsequent contraction of the stomach wall upon the tube prevents the troublesome leaking which so often follows when the opening in the stomach is made larger than the tube and afterward sewed up. Cripps plugs the hole in the stomach or intestines by a piece of rubber tissue as thick as a shilling and a good deal larger than the opening. This he inserts by means of a pair of dressing forceps, having rolled it up After it is inserted the forceps are removed, the rubber disk resumes its normal shape and is pulled tight against the opening by a thread which passes through its center and is fastened to a pin wrapped in gauze and then tied.

In this country Weir and Foote have successfully operated on a round ulcer of the stomach, showing the wisdom of interfering before it is too late for the surgeon to be of use.

The interior of the bowel has also received attention and Stephan has established an artificial anus in a case of obstinate dysentery which had resisted medication, and applied local treatment to the diseased area through this opening, subsequently closing the wound when the dysentery had been cured.

Whenever any operation or invention is good it invites criticism and is modified in various ways to meet the views of the critics. The Murphy button is no exception to this rule, and no less than three different buttons or bobbins of decalcified bone have been recently devised to take its place. The suggestions coming from Chaput, Hayes of Dublin and Jackson Clark of London.

The treatment of diseases of the intestines brings to mind the subject of hernia, and it has always seemed strange to me that we should couple the operation for curing hernia by the reconstruction of the inguinal canal with the name of a foreigner instead of with that of Marcy, who practiced and taught this operation for years without having it generally adopted until it had made a trip across the ocean and returned with a foreign endorsement. I trust that some time in the future the surgeons of this country will give our former President the credit which he deserves.

The urinary tract has also given us examples of progressive surgery, Fenwick having successfully transplanted part of a sheep's urethra to close a defect in man, while the ureters have been the site of many successful surgical procedures both at home and abroad, the chief work of this country having been done by Kelly, Roberts and Van Hook. The kidney itself is now often spared when a few years ago it would have been removed, and in place of extirpation many cases, when a large part of the kidney is healthy, are now treated by the removal of such parts as are diseased. In hydronephrosis Fenger has been successful in the removal of valve-like formations from the pelvis of the kidney, which prevented the free egress of urine.

Brain surgery still continues to be most daring, and although the results of some of the operations speak more for the thoroughness of technique which renders them possible than for diagnostic skill and reasoning powers of the operator, some wonderful results have been achieved, as in the case of removal of cerebellar tumor from a child 4 years of age, reported by Parkin to the Clinical Society of London.

In the surgery of the vascular system distinct advances have been made. The heart itself has for the second time been sutured successfully but a few months ago as reported by Rehn of Frankfurt, Germany, while the experiments of Murphy have shown that veins and arteries can not only be sutured with success when torn, as had been done in previous years, but that injured portions can be resected and the continuity of the vessel restored by end to end anastomosis with invagination. He has also successfully

carried out the same operation in man, though perhaps our scientific brethren on the other side of the water might object to accepting the later cases as the patency of the vessels has not yet been demonstrated on the postmortem table.

The antivivisectionists also might object to the series of experiments which lead up to this successful operation as they have to those of the various workers whose experimental researches have done so much to make clear the hidden mysteries of disease during the past decade, and I feel that a word of warning may not be out of place here to all of you who, relying on the intelligence of our legislative bodies and their certainty of doing the right thing at the right time, believe that the bill now pending before Congress to limit the practice of vivisection will not pass. Unless the medical profession exercises the same assiduity in opposing it that the advocates of the bill show in pushing their scheme both before Congress and elsewhere the bill is very certain to become a law and the entering wedge for acts preventing animal experimentation altogether.

Perhaps the most striking advance that has been made in surgery during the past year has been the discovery of the X rays. It is not my intention to enter elaborately into a discussion of the phenomena which were first described by Professor Roentgen of Wurzburg, in the beginning of the past year, but to deal more especially with their practical application in the field of surgery.

One of the first things that was done, simultaneously, by a number of observers in different parts of the world, was to manufacture apparatus by which the effect of these rays could be seen by the naked eye, in the shape of an opaque box fitted closely to the face, having the surface opposite the eyes coated with a flourescent substance, so that when this surface was turned toward the source of the X rays it became luminous and the shadows of the hand or any other substance could be readily observed. Barium platinocyanid, which Roentgen employed, being very expensive, various other substances were investigated, Mr. Edison having been especially active in this direction, and tungstate of calcium has been found extremely well adapted for the purpose, becoming very luminous and being comparatively cheap. The fact that these rays were capable of affecting the ordinary photographic plate has led to most sudden and widespread interest in this extraordinary phenomenon, and much work has been done in turning these scientific truths to practical account. Skiagraphs are taken with the tube distant about eighteen inches from the patient, as a rule. In some instances the patient lies on the plate, which is covered only by a paper envelope, to preserve it from becoming fogged by the daylight. In other cases a fluorescent screen of paper covered with tungstate of calcium is placed next to the film, the object of the screen being to shorten the time of exposure; but I do not think that the pictures so taken are as clear in outline as those taken without the screen. Both of these methods of observing the interior of the body are of use to the surgeon and have their separate uses.[1]

[1] Since this address was written it has been suggested to the author by Dr. H. W. Frauenthal that a small fluoroscope fitted to one eye could be used in certain operations, enabling the operator to see with one eye the outer field of operation and with the other the relation of the deeper structures, after the manner of using the camera lucida in drawing microscopic fields. Practical experience with the method has shown it to be difficult to acquire the necessary dexterity of the ocular muscles, but it is believed to be a useful suggestion.

It was evident from the first that this new discovery opened a wide field in surgical diagnosis, and it has seemed to me that it might be of interest to you to dwell upon some of the conditions in which I have found it of benefit. You all have heard of the numerous instances in which needles have been located, which were otherwise inaccessible, and have heard of the case where an enormous number of bird shot were located in the hand, some in the bones, some in the soft parts, and successfully removed. Another extremely curious fact is that glass is much more opaque to the rays than are many metals, and, in consequence, that pieces of glass, which are often very hard to find when imbedded in human tissues, can be located with ease by this method.

The most obvious use to which this new discovery can be placed is in the location of uncertain fractures and in the differential diagnosis between fracture and dislocation in the neighborhood of a joint. After the fracture has been set and the dislocation reduced it is possible by means of the X-ray to determine whether the dislocation has been satisfactorily reduced, and if the broken fragments are in correct apposition; all this being accomplished while the injured member is in its plaster-of-Paris dressing, so that instead of waiting a number of weeks and removing the dressing to find that the fragments are incorrectly placed, this fact can be ascertained at once and the mistake remedied. In locating foreign bodies that have been swallowed the X-rays have rendered good service. The patient's sensations not always being a reliable guide as to the exact location, while the skiagraph tells us exactly where to operate.

In operations on congenital dislocation of the hip it is feasible, first of all, to take a skiagraph or shadow picture of the pelvis, showing the acetabulum and the displacement of the femur, and later on to take a similar picture showing whether or not we have been successful in replacing the head of the femur in the acetabulum.

In cases of old sequestra in the neighborhood of a joint, it is possible to locate these sequestra, and I believe that it is possible to locate in this manner abscesses occurring in bone, although I have not had a case on which this experiment could be tried.

The localization of foci of disease in the neighborhood of tubercular joints, before the joint itself has become involved, is a matter of much importance and may at times point out to the surgeon the mode by which such a focus may be successfully removed before the disease has invaded the joint.

Another point upon which it has bearing is the differential diagnosis between fibrous and bony ankylosis. In skiagraphs of the normal joint there is apparently a distinct interval between the ends of the bones comprising a joint, which is due to the fact that the cartilage covering the ends of the bones is so very much more translucent than the bone itself that it does not cast a shadow, whereas, in a joint where the cartilage has been absorbed and the bony surfaces themselves brought in contact, this apparent gap does not exist. In studying these pictures more can usually be seen on the negative than in the print, although this is not invariably the case, and a certain amount of practice is likewise necessary in order to permit one to correctly interpret what he sees. I remember being greatly deceived in the first picture which I saw of a child's ankle. I had not seen the child but was told it had been the subject or a rail-

road accident, and I at once imagined that the fissures which I saw in the skiagraph in the neighborhood of of the ankle-joint were either fractures or epiphysial separations, but on examining the picture of the other leg I found exactly the same gaps in the bone and at once saw that what I had taken for fractures were simply the epiphysial cartilages, which had not yet become ossified, on account of the youth of the subject, and in consequence failed to cast a shadow.

In children this same phenomenon is noticed in the acetabulum and about all joints, where the epiphysis appears as a small button of bone quite distinct from the shaft, and not touching the button of bone which forms the epiphysis composing the other side of the joint. If, however, the exposure be nicely timed the outline of the entire end of the bone can be made out, its shadow being much less dense than that of the ossified center. This same fact makes the skiagraphs of clubfeet of very little importance in children, because the bones are so largely cartilaginous that their relations to one another are rendered very indistinct and only the central parts can be discerned, large gaps apparenrly existing between all the bones of the foot.

It affords us, however, a very striking proof of a fact that all of us must realize as soon as our attention is called to it, that the feet of children are extremely cartilaginous, and that the bones are susceptible, in consequence, of very large alterations in shape, provided they are properly manipulated; and a practical deduction which may be drawn from this is the folly of removing such cartilaginous bones in young children, instead of submitting them to properly directed force, in order that their shape may be so modifed as to correct existing deformities. In cases of web-fingers and supernumerary toes, great use has been made of this discovery in planning operations, as the outward appearance of the hand does not always give a correct idea of the internal relations of the bones.

Calculi in the kidney, ureter or bladder can be detected by this means—the uric acid and oxalate of lime being most easily seen. Gallstones cast too faint a shadow to be found with certainty.

It seems to me that it may be possible, with a better practical understanding of the application of the principles in making these pictures, that good skiagraphs may be obtained of tumors and much light thrown upon abnormal conditions within the thorax and pelvis. I have, as yet, seen no good picture which confirms this view, but the more I have seen of the practical workings of X-ray photography the more I have realized the very delicate adjustment which is necessary to attain certain results.

It must not be supposed that all that is necessary to obtain practical results is the purchase of an induction coil, a battery and a few Crookes' tubes. Practical experience is needed to show the amount of current to be used, the rapidity of interruption, the proper length of a spark, the amount of exposure, and a great many tiresome failures will be necessary before good work can be achieved. The exposure which gives the best definition for bones is altogether too long to give definition for soft parts, and the operator must know in advance what he is trying to show in order to be able to regulate with exactness the conditions to produce a proper result. Again, it is necessary to familiarize yourself very thoroughly with the skiagraph under consideration, and each time that you study it new features will impress themselves on your mind. It often happens that when you return to an old skiagraph after an interval of a few days you will discover various points of interest in it which you failed to detect at the time of your previous examination. The shadows which are cast by various parts of the body are not very well known to us. It is a matter which has been investigated, very superficially, and it will require a large number of observations before we are able to put the proper interpretation upon the pictures that we see. We have to bear in mind that the nearer the plate is to the object which casts its shadow upon it the more clearly defined will be the outline. In many instances some parts of the body which are photographed are much more dense than others and the amount of exposure which is necessary to give the best results in certain places will be too long or too short to give the best results in others, and, in consequence, if we wish to examine the entire length of a bone, or the length of the spinal column, for instance, it may be necessary to take a series of plates, with different exposures, and to combine all of these in our search for information.

The time at my disposal is so short and the number of advances in surgery is so vast that it would be impossible to give a synopsis of them all. I have, therefore, dwelt in this most cursory manner on only a few of the most important advances made during the past year.

Glancing at these novel procedures we can not help being impressed with the fact that the lines along which surgery is developing show, even more clearly than heretofore, how far the surgeon of today is departing from the type of his early predecessors. The early surgeon, as his name denotes, worked with his hands, χείρ-ἔργον—the chirurgeon, the skilful, handy man—while the surgeon of today not only calls into play the dexterity of his fingers, but in addition thereto exercises his intelligence, his mastery of kindred sciences and puts into practical application the truths of physiology, physiologic chemistry and the results of bacteriologic research. The surgeon of today applies to the solution of the problems which confront him, the experience of the bacteriologist, the chemist, the physicist, and substitutes for empiric methods and for those which have been handed down from generation to generation and accepted as correct in a blind, unthinking way, newer and more scientific proceedings, based upon logical deductions from physical phenomena, and the application of abstract scientific truths to the living being. In the extremely interesting papers which will be brought before you in this meeting you will find this position amply justified.

Medicated Soaps, Savonal.—According to the *Nouveaux Remèdes*, July 24, it has been found that dermatoses are influenced more rapidly by medicated soaps than by salves and pastes, and Müller and Grube have succeeded in producing a soap base which is more stable and efficient than Unna's, etc., as there is no grease in excess. It is made by mixing cold olive-oil, potash lye and alcohol until complete saponification; the fat acids are precipitated with weak hydrochloric acid on glass, and the alkalin mother liquid added until the limpid liquid is perfectly neutralized, when it is evaporated to the consistency of a salve, light green in color, which they call savonal. It is liquefied by adding a certain per cent. of glycerin and aq. dest. and evaporating to a syrup (specific gravity, 1,050 to 1,055). Twenty-three medicated soaps made from it are given with their indications.